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AN INTERDISCIPLINARY STUDY OF THE "A" COINS OF YEHOCHANAN

by Professor John Brug

PREFACE

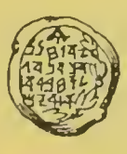
Almost everyone loves a mystery. It is fascinating to try to solve a mystery by piecing together the clues. Mystery lovers will find a study of the Jewish coins of the Hasmonean or Inter-testamental period very rewarding, because the topic abounds with unsolved riddles and unanswered questions.

This period of history is in itself very intriguing. It begins with the inspiring patriotic revolt and war for religious freedom led by the Maccabees. It takes us through the ambitions and intra-family rivalries of the Hasmoneans. It ends with the Jewish nation caught between the ambitions of the Roman dynasts struggling for power in the civil wars, the intrigues of Antipater and Herod, and a civil war between brothers that opens the door for both the Romans and Herod.

The mysteries of ancient coins provide a very fertile field for wild speculation, but the field should also be of great interest to interdisciplinary scholars because it is an area that provides an excellent opportunity to apply a broad range of disciplines such as historical analysis, epigraphy, archeology, and scientific testing.

This paper involves one unsolved mystery of the ancient Jewish coinage of the Hasmonean period, the mystery of the "A" coins of Yehochanan. Ancient mysteries have always held a great deal of attraction for cranks, crackpots, and even for wise men in their less guarded moments. Confident that we fall into the last category, let's get on with the mystery.

Coin-of-the-Month



THE MYSTERY

The Hasmonean rulers of Israel issued a series of small bronze coins which feature archaic Hebrew inscriptions on the obverse and double cornucopiae on the reverse. Although there are many variations, the basic format of the inscriptions consists of the name of the ruler who issued the coins, followed by the words, "the high priest and the council of the Jews." A typical inscription would read: יהוחנן הכהן הגדל וחבר היהודים

Yehochanan the High Priest and the Council of the Jews.

The four rulers named on these coins are Yehochanan, Yehonatan, Yonatan, and Yehod. The attribution of these coins has been hotly disputed. The basic theories are summarized in Table I (at the top of the next page.)

From the chart one can see that the basic problem is how to link the Hebrew names found on the coins with the Greek names of the rulers which are used by Josephus. The most fundamental question is whether Jewish coinage began with John Hyrcanus I (135-104 B.C.) or Alexander Jannaeus (103-76 B.C.)

Today it is generally accepted that both the Yehonatan and Yonatan coins should be attributed to Alexander Jannaeus (103-76 B.C.). The Yehod coins are assigned to Judah Aristobolus I or II (103 B.C. or 67-64 B.C.). The most basic unresolved question is whether the Yehochanan coins should be assigned to Hyrcanus I (135-104 B.C.) or Hyrcanus II (67, 63-40 B.C.). Whether a person attributes the Yehod coins to Aristobolus I or II is generally determined by whether he assigns the Yehochanan coins to Hyrcanus I or II.

The preliminary aim of this study is to determine if the Yehochanan coins should be assigned to Hyrcanus I or II or to both of them as Kindler suggests. The question is complicated by two variants of the Yehochanan coins. One variety has the inscription "*head* of the council of the Jews." Another variety contains the Greek letter "A" above the inscription.

A number of interpretations have been suggested for these "A" coins. According to these interpretations "A" stands for:

Antiochus VII Sidetes as an "ally" of Hyrcanus I.
Alexander II Zebinas in a similar role.
Alexander I Balas in a similar role.
"A" stands for "aurea" and refers to the golden crown given to Yehochanan by Alexander Balas (I Macc. 10:20)
"A" is a date indicating the first year of a reign.
"A" is Alexandra, the mother of Hyrcanus II.
"A" is Antipater, the real power behind Hyrcanus II.
"A" is Aristobolus I or II.

TABLE I

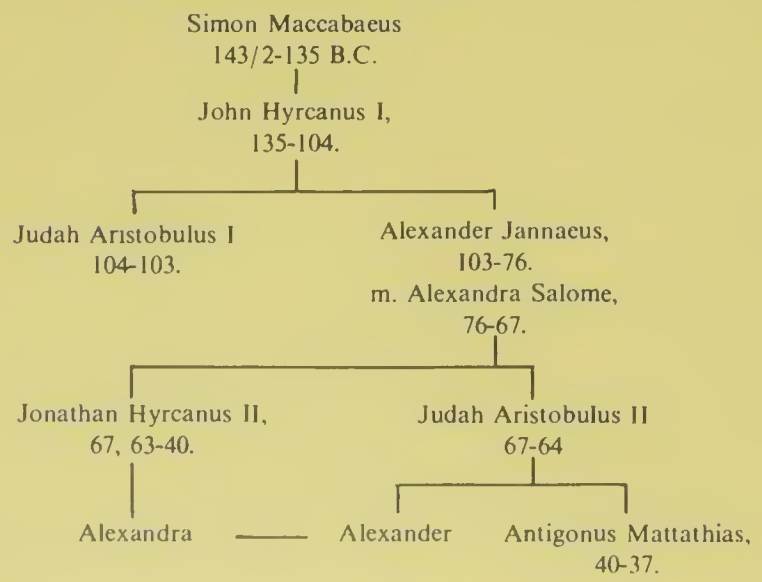
	Hyrcanus I 135-104 BC	Aristobulus I 104-103 BC	Alexander 103-76 BC	Hyrcanus II 67, 63-40 BC	Aristobulus II 67-64 BC	Antigonus 40-37 BC
Madden[1]	Yehochanan	Yehod	Yehonatan Yonatan	———	———	Mattathias
Hill[2]	Yehochanan	Yehod	Yehonatan Yonatan	———	———	Mattathias
Reifenberg[3]	Yehochanan	Yehod	Yehonatan	Yonatan	———	Mattathias
Wirgin[4]	Yehochanan	Yehod	Yehonatan	Yehochanan	Yonatan	Mattathias
Kindler[5]	Yehochanan	Yehod	Yehonatan Yonatan	Yehochanan	———	Mattathias
Meshorer[6]	———	———	Yehonatan Yonatan	Yehochanan	Yehod	Mattathias

[1]F. W. Madden, *History of Jewish Coinage and of Money in the Old and New Testament*, 1864, reprinted New York 1967.
[2]*British Museum Catalogue*, Vol. Palestine, by G. F. Hill, London, 1914.
[3]A. Reifenberg, *Ancient Jewish Coins*, Jerusalem, 1947.
[4]W. Wirgin, 'The Quadrantes of the Hasmonaean High Priest', *Seaby's Coins and Medal Bull.*, 1950, No. 7.
—— and S. Mandel, *The History of Coins and Symbols in Ancient Israel*, New York, 1968.
[5]A. Kindler, 'Epigraphic Table of the Hasmonean Coinage', *IEJ.*, Vol. 4, Nos. 3-4, 1954, plate 14.
[6]Y. Meshorer, *Jewish Coins of the Second Temple Period*, Tel-Aviv, 1967.

The primary aim of this paper is to try to determine if the "A" coins can be assigned to Hyrcanus I or II and to see if a definite interpretation of the "A" is possible. If these "A" coins can be dated more precisely, their potential value for the precise dating of archeological levels will be greatly increased. If the "A" can be definitely interpreted, it could provide useful information about the relative strength and the relationship of some of the individuals involved in the political intrigues of the day.

We will examine several types of information in an attempt to answer these questions. Historical documents, particularly Josephus, could provide information about political developments which would be helpful in interpreting the inscriptions. The distribution of the coins in hoards or stratified finds or the geographic distribution of the coins could indicate that the coins most likely come from the time of Hyrcanus I or Hyrcanus II. A study of other monograms and countermarks on Seleucid and Hasmonean coins could yield informastion about the purpose and interpretation of marks like our "A". Differences of weight or metallic composition may make it possible to divide the coins into groups which can be more easily attributed. Differences of epigraphy could be significant for grouping and attributing the coins.

GENEALOGICAL TABLES



HISTORY

John Hyrcanus I, who ruled from 135 to 104 B.C. was the third son of Simon Maccabeus. He was besieged in Jerusalem by Antiochus VII and forced to accompany him on a campaign against the Parthians in 130 B.C. After Antiochus died in 129 the weak Demetrius II came to power. During this time Hyrcanus was able to expand his power with mercenaries. Alexander Zebinas was brought in by Ptolemy VII and got rid of Demetrius about 125. Demetrius' son, Antiochus VIII Grypus, ousted Alexander Zebinas by 123, but he in turn was deposed by his own brother Antiochus IX Cyzicenus. These two later became co-rulers. During this time of Seleucid weakness Hyrcanus again expanded his military power. For our purposes here it is sufficient to note that Hyrcanus I was an active king who became increasingly independent of Syria and who aggressively expanded the military power of the Jewish nation.

Hyrcanus' son, Judah Aristobolus I, only ruled for about a year. He is not particulary important for our purposes here, because the question of whether he minted any coins depends largely on how one attributes the Yehochanan coins.

Aristobolus' widow released his imprisoned brother, Alexander Jannaeus, and married him. Alexander ruled from 103 to 76 B.C. His reign was a time of much military activity and the greatest territorial expansion of the Hasmonean kingdom. His coins are very plentiful, but they do not help us solve the question of the Yehochanan coins, except perhaps on an epigraphical basis which we will consider later.

Alexander was succeeded by his widow Alexandra Salome or Salina (76-67 B.C.). Unlike the kings who came before and after her she was pro-Pharisee, rather than pro-Sadducee. She is significant for our study, because her son Hyrcanus II was high priest during her life time, and she is a prime candidate for the "A" on the coins.

When Alexandra died, another of her sons, Judah Aristobolus II, usurped power from his brother Hyrcanus II. The Idumean, Antipater, supported the weak Hyrcanus as a better front man for his own ambition. Aristobolus was ousted from power when Pompey captured the Temple Mount after a three month siege (63 B.C.).

Hyrcanus II returned to power (63-40 B.C.). Aristobolus and his sons Alexander and Antigonus failed in two attempts to gain power, but the Roman Gabinus curtailed Hyrcanus' political power in 57 B.C. Hyrcanus and Antipater became adherents of

Caesar and were rewarded for aiding him in the Alexandrian War. In 47 B.C. Hyrcanus received the title *ethnarch*. Antipater became *epitropos*, a type of financial official. His sons, Herod and Phaesal, became *strategoi*. Antipater was soon poisoned. Aristobolus and Alexander had already been killed earlier. Antigonus made a new attempt to seize power. Herod won favor with Anthony, but Antigonus successfully seized power with Parthian support. Phaesal was eliminated, and Hyrcanus was mutilated, disqualifying him from the priesthood. Herod regained control with Roman help by 37 B.C., and Antigonus was executed, ending Hasmonean rule. These are the political and historical circumstances which provide the background for the suggested attributions of the Yehochanan and "A" coins.

The circumstances of the reign of Hyrcanus I do seem to provide a very plausible setting for the beginning of independent Jewish coinage, but we will have to look for further evidence to support such a conclusion. None of the attributions of the "A" coins to the time of Hyrcanus I seem very plausible. It would hardly be very flattering to a Seleucid monarch to be "honored" with a mere initial on a coin which devoted an entire inscription to a Jewish ruler. Nor does the suggestion that "A" means year one fit very well into the rule of Hyrcanus I. Even if he began minting coins fairly late in his reign, the proportion of Yehochanan coins with the "A" seems too large for the "A" to be a date indicating one year's mintage. It is also hard to imagine why no other dates appear if the "A" is a date. If "A" is a date, why is a Greek letter used, rather than a Hebrew letter like those used as dates on the coins of the Ist Revolt?

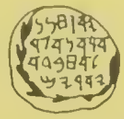
The reign of Hyrcanus II seems to provide more plausible possibilities for linking the letter "A" to historical persons than the reign of Hyrcanus I does. Alexandra, the mother of Hyrcanus II, was the sovereign during the beginning of his high priesthood. Since she could not hold the high priesthood herself, it seems reasonable that the high priest coins issued during her reign would acknowledge her rule by the Greek initial of her Greek throne name. It is equally plausible that Hyrcanus would drop the "A" after her death.

It is also plausible that later in the life of Hyrcanus II when Antipater became more sure of himself as the real power behind the throne, he could have taken the bolder step of putting his own initial on the front of the coin, rather than on the back where mint officials' initials usually appeared. This theory will be discussed more fully in the section on monograms.

If it could be shown that the "A" was a countermark, it would be reasonable to link it with an effort by Aristobolus II to appropriate to himself the coinage of his brother, until he had a chance to mint his own after he seized power in 67. However, it seems clear that the "A" is part of the die engraving, and that it is not a countermark.

The reign of Hyrcanus II also provides a possible occasion to interpret the "A" as the date "year one", since he had a one year rule in 67 which was abruptly ended by Aristobolus. Hower, this time seems too brief to account for the comparatively large number of "A" coins. Furthermore, the first year of Hyrcanus' rule would hardly provide the excitement of the first year of freedom from Rome which led to the introduction of new era dating on the Ist Revolt coins.

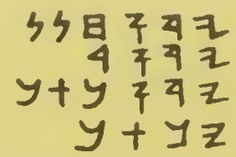
Hebrew "Aleph" above vessel represents the first year of the First Revolt on this silver Shekel (66/67 AD).



1st line: Name of Ruler
2nd line: The High Priest
3rd line: And Community
4th line: Of the Jews

The Hasmonean "mites" are all similar with the exception of the ruler's name. The ancient Hebrew names are as follows:

Yehochanan
Yehod
Yehonatan
Yonatan



The reign of Hyrcanus II also provides a plausible occasion for the coins containing the motto "*head* of the assembly of the Jews." Hyrcanus' reception of the title *ethnarch* from Caesar in 47 B.C. would provide a likely occasion for the change. Since the Beth Zur hoard indicates a close connection between the *rosh* (head) coins and the "A" coins, a case can be made for connecting both types with Hyrcanus II.

In summary, the historical sources offer some support for the theory that Yehochanan coins were issued by both Hyrcanus I and II. The historical information provides better grounds for connecting the "A" coins with Hyrcanus II than with Hyrcanus I. However, the available historical evidence is not adequate to provide solid proof for any one interpretation of the "A" coins.

HOARDS and STRATIFIED FINDS

The available evidence from hoards and stratified finds is disappointing and of little value. There are no hoards adequate to establish firmly whether or not the Yehochanan coinage began with Hyrcanus I. The most important hoard of Yehochanan coins is the find allegedly from a cave near Beth Zur which has been reported by Sukenik[2]. Of the coins which are clear fifteen have the "A". Thirteen do not have it, and ten have the *rosh*. The hoard is not completely published, so its exact contents and its epigraphy cannot be determined. The coins are in excellent condition and appear to have been buried shortly after minting. Meshorer dates this hoard to about 45 B.C.,[3] but this date depends entirely on one's interpretation of the coins. So the hoard's only value is that it shows the relationship of the *rosh* and "A" coins. I was not able to find any other hoards which contribute any significant information toward resolving the question of the Yehochanan "A" coins.

The information on stratified finds is also inadequate to make much of a contribution. In most cases the information is too skimpy to be helpful. Most coins are simply described by reference to the number in Hill with some additional information on weight, diameter, and inscription. Khirbet Shema was the only site report I found with adequate stratigraphic information, conveniently arranged, to make a study of the Yehochanan coins. Unfortunately all of the Yehochanan coins found at Khirbet Shema are in loci which cannot be dated exactly enough to be on any help. The coins themselves are the most datable items in the loci, so the loci are dated by the alleged dates of the coins found in the standard catalogues. Many of the Hasmonean coins at Khirbet Shema are found in loci which contain predominantly late Roman coins.

Even when publication is adequate, it is often difficult to interpret hoards or stratified finds of coins. Hoards are only useful if it can be determined with some degree of reliability how and why

the coins were assembled. Is it a savings, mercantile, or bullion hoard? Were the coins assembled for a particular purpose at one time, or merely accumulated accidentally in some kind of catch area? Is the hoard an artificial assemblage created by the finder or dealer? In evaluating the hoard it is necessary to try to distinguish wear due to circulation and wear which occurs after deposit.

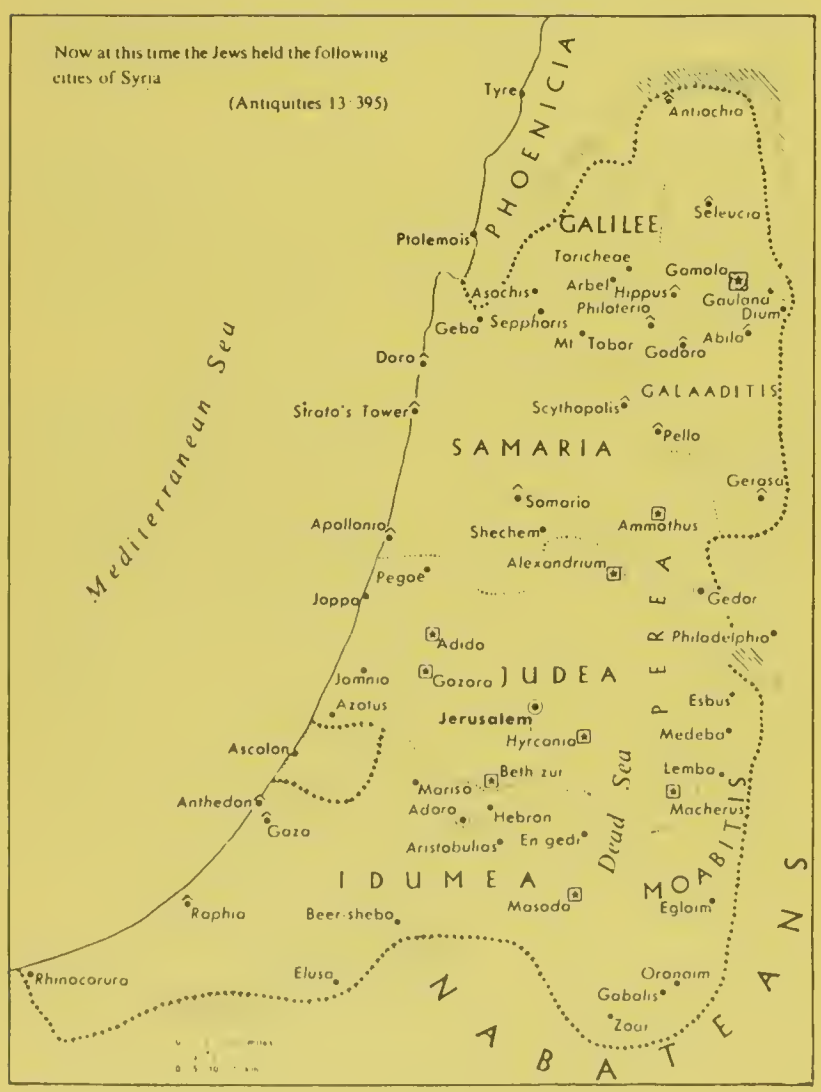
The long life of ancient coins makes it difficult to date strata by a few coins. The composition of hoards shows that ancient coins were often in use for well over a century. Another problem of stratigraphy is that coins tend to sink due to weight, burrowing, worm action, and filling.

The big problem, however, is lack of published information. Until this gap is filled, not much can be done.

THE KINGDOM

OF ALEXANDER JANNAEUS

103 to 76 B.C.



GEOGRAPHICAL DISTRIBUTION

We should study the distribution patterns of the various types of Yehochanan coins. If the geographical distribution of certain types corresponds more closely with the economic or political spheres of either Hyrcanus I or Hyrcanus II, this would be useful evidence for attributing the coins. Yehochanan coins are found in all areas of Israel: at Jerusalem, at Gibeon, at Sepphoris, and Khirbet Shema. Yehochanan coins and other Jewish coins from the time of Jannaeus, Archelaus, Agrippa I, and the First Revolt turn up as far away as Dura Europus. On the other hand, Hasmonean coins were completely missing from Shechem, an area which we know was a site of Hasmonean activity. One significant point was that I found no definite evidence for any "A" coins outside of the vicinity of Jerusalem, except for one possible example at Dhiban in the Transjordan. This may be due to the fact that all site reports do not distinguish various classes of Yehochanan coins. The data which I examined was too scanty to draw any conclusions, but as more information becomes available, we should observe if the "A" coins actually are limited predominantly to the vicinity of Jerusalem.

The information presently available is too fragmentary for us to be able to draw any firm conclusions from the stratigraphic or geographic distribution of these coins. Attention should be directed toward filling this gap in the data which we need for an interdisciplinary study of these and other Hasmonean coins. Reports from excavations already underway should help fill this gap.

CHARACTERISTICS OF THE COINS

The remaining points to be considered are various characteristics of the coins themselves. For this purpose I was able to obtain specific information on 17 Yehochanan coins with the "A", 8 with the *rosh,* and 57 other Yehochanan coins which contain the same basic inscription. (Total - 82). For comparison I had information on 5 Yehod coins, 12 Yonatan, and 26 Yehonatan coins. The sources which provided the largest number of coins were Hill's catalogue of coins in the British Museum and the unpublished information on the coins of Kathleen Kenyon's Armenian Garden excavation in Jerusalem, which was provided to me by Dr. John Lawrenz, who is preparing the publication of these coins.

As has been mentioned above, the interpretation of the "A" coins depends on whether the Yehochanan coins were issued by Hyrcanus I, Hyrcanus II, or both of them. Since Hyrcanus I would be the first Hasmonean to issue coins and Hyrcanus II would be the last Hasmonean to issue coins, the high priest inscription coins of the Hasmoneans should be studied for any clear pattern of change in weights. For example, if the Hasmonean coins showed a pattern of decreasing weight from beginning to end, and if the "A" coins fall into the lowest end of the weight tables, this would be at least one bit of information suggesting that they might belong to Hyrcanus II. In such studies, of course, allowance must be made for divergencies which are due to differences of wear and condition.

However, when we study the weights of the Hasmonean coins, it becomes clear that there is no coherent pattern to the weight variations in these coins. In every type there is a great and erratic fluctuation in weights. The plain Yehochanan coins vary from 3.00 grams to 1.392. The *rosh* coins range from 2.29 to 1.96. The "A" coins range from 2.78 to 1.59. The ranges for the coins bearing the names of other rulers are: Yehod — 2.27-1.91; Yehonatan — 2.69-1.14; Yonatan — 3.10-1.45. The pattern of erratic variation of weight holds true no matter how the coins are grouped. Coins which are identical in weight have quite different inscriptions or styles of lettering. Coins which have identical inscriptions and styles of lettering vary greatly in weight. These weight fluctuations don't appear to have any significance for differentiating denominations. Hill simply speaks of them all as the "smaller denomination". Kindler refers to them as *prutah* or *dileptons.* The normal range is 1.75 grams to 2.6 grams, with extremes of 1.08 and 3.5. There are smaller Hasmonean coins which weigh about a gram or a half gram, which are sometimes called lepta and hemi-lepta.

Lepton

Dilepton

Trilepton

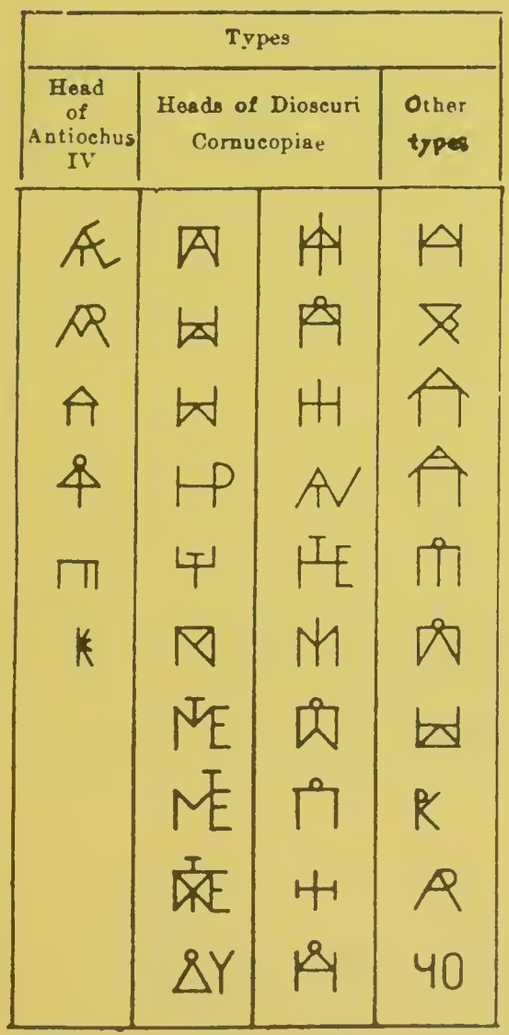
There is also a rare larger coin, which is given the name trilepton which ranges above 3.5 grams. However, the cornucopiae/inscription coins which we are discussing appear only in the prutah or dilepton denomination. It seems that the makers were quite careless about the individual weights of these small change coins. Although the weights vary greatly, the diameters are a fairly uniform 14-15 mm. The weight differences are due mainly to different thicknesses due to indifference toward filling each mold to the same depth with the molten metal. The same negligence concerning precise weight also applies to the smallest coins of the Herods and the procurators. At any rate weight differences are not helpful to us in solving our mystery.

MONOGRAMS AND COUNTERMARKS

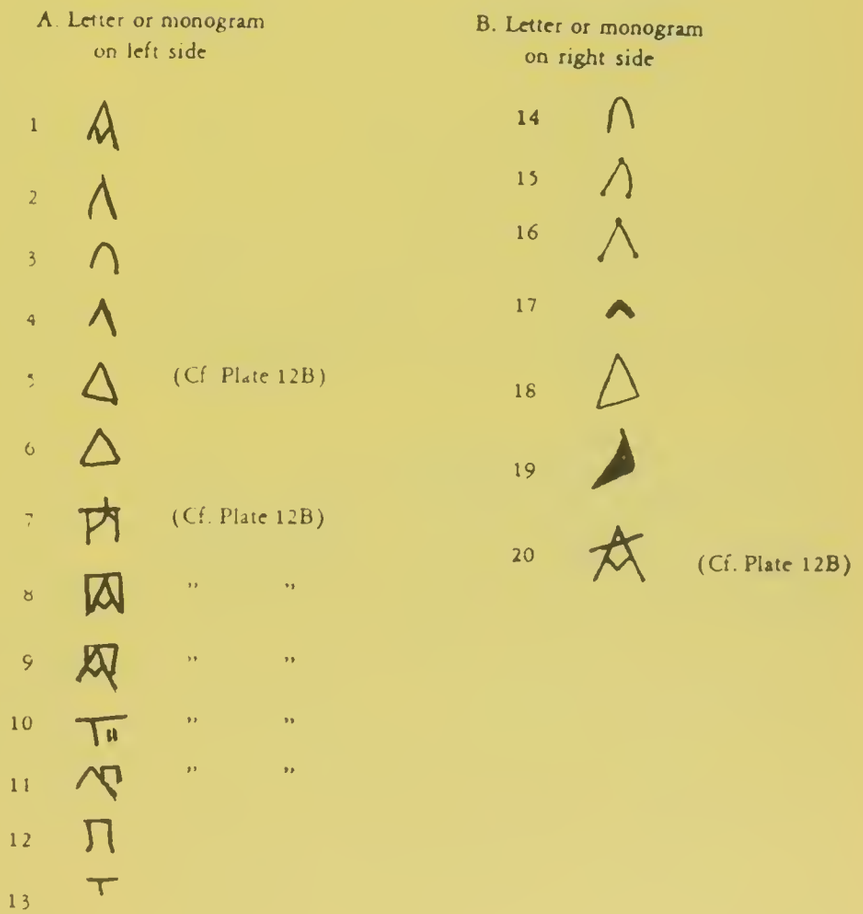
In attempting to interpret the "A" on our coins some scholars have directed attention to the monograms which appear on the reverse or cornucopiae side of some of these coins in the belief that these monograms may be the predecessors of the "A"s which appear above the Hebrew inscriptions on some of the coins. These monograms seem to be based on similar monograms which appear on the coins of the Seleucids, which clearly provide the inspiration for many motifs of the Hasmonean coins. The charts compare the monograms which appear on the reverse of the coins of Acco-Ptolemais with the monograms which appear on the reverse of the Hasmonean coins. It is generally believed that the monograms on the Seleucid coins are marks of the mint officials who were responsible for specific issues. Since these monograms change very often on the coins of this one city, Acco-Ptolemais, they are not likely any type of mint mark.

Kindler and Kanael interpret the Hasmonean monograms 1-6 and 14-19 as the letter "A". Monograms 12 and 13 are interpreted as "P". Monograms 7-11 and 20 are interpreted as "AP." The first thing that is apparent in examining the chart is that it is not at all apparent that all of these monograms really represent "A" or "P". If these monograms are really not all "A"s and "P"s, but include such letters as "D" or "L" the case for ascribing them to Antipater is

MONOGRAMS OF THE SELEUCID COINS OF PTOLEMAIS



MONOGRAMS OF THE HASMONIAN CORNUCOPIA COINS



Location of monograms on Hasmonean coins.

greatly weakened. Kindler's only defense is to fall back on the claim that the engravers of the Hasmonean coins were extremely careless about their letter forms.[4] There is indeed plenty of evidence of careless workmanship on these coins. There is also one possible example of an "A" coin from Dhiban which has a letter very much like monograms 3 and 14 above the obverse inscription. Nevertheless, it seems improbable that monograms intended to identify officials would be made with no regard for legibility.

These monograms appear on plain Yehochanan coins (1,2,6,8,14,19), on coins with the unusual inscription 𐤉𐤄𐤅𐤀 in place of the normal 𐤉𐤄𐤅𐤃 (these coins have *heth* written as 𐤇 rather than the more normal 𐤄 (Nos. 3,7,9-13,20), and on *rosh* coins (4,5,15-17). I found no example of a coin that had both our "A" on the obverse as well as one of these monograms on the reverse.

Another factor that raises questions about the attribution of these "AP" monograms to Antipater is that they are identical to monograms appearing on Seleucid and other coins. The monograms numbered 1 and 2 in the chart of Seleucid monograms are identical to monograms which appear on Yehochanan coins (cf. Meshorer coins 20 and 20A). Symbols very similar to our "AP" symbol appear on coins found at Dura Europos and Seleucia. See countermark 5 and symbol 23 of the Dura Europos coin catalogue. The monogram identical to our "AP" monogram appears on a coin of Hieropolis-Castabala, a city of Cilicia in the 1st century B.C. (Dura Catalogue, coin 1916). Also see monograms 13, 52, 53 in the Seleucia catalogue for the appearance of "AP" monograms on coinage of Antiochus I and of autonomous Seleucia.

No one has yet given a more plausible interpretation of these monograms than Kanael's identification with Antipater. Perhaps he is correct, and it is mere co-incidence that identical monograms appear on coins of other places, but the widespread occurrence of this monogram should at least alert us to the possibility that this monogram may have some more general meaning relating to coinage. We should therefore be cautious about accepting the identification with Antipater too readily.

I also considered the possibility that the "A" and "P" could stand for Acco-Ptolemais, if Hyrcanus made use of engravers from the mint there. This would at least be a possibility in the period of Hyrcanus II when the Romans were *de facto* rulers of the whole area. There would be no political reason why Hyrcanus could not farm-out work to the Acco mint in a way which he could not have done in the earlier perid of Hasmonean-Seleucid rivalry. The double name of the city also suggests a reasonable explanation of why "A" was used sometimes, "P" sometimes, and "AP" sometimes. This theory is pure conjecture. I was not able to find any evidence to support it or to refute it. In other words it has about the same amount of evidence to support it and the same amount of plausibility as most of the other interpretations that have been offered.

THE INSCRIPTIONS AND THEIR EPIGRAPHY

I have already mentioned that the inscriptions on these coins are not written in "square" or "Aramaic" letters like those used in the Hebrew Bible which we are familiar with, but in what is called the "archaic" or "Phoenician" script. Some variety of this script was used on almost all varieties of Jewish coins, even down to the time of the Second Revolt.

The person who sets out to examine the epigraphy of these coins is immediately confronted with a fundamental problem about the very nature of this script. Meshorer maintains that no epigraphic conclusions can be drawn from variations in the script of these coins, since these are not living letters to which principles of development and evolution apply. He maintains that this script was not in use except on the coins. The artists who engraved the dies simply copied letters from ancient manuscripts. The form of letters which they used is nothing but a reflection of the manuscripts which they used. The different styles of lettering do not reflect different times of manufacture, but only the different ages of the ancient manuscripts which were used as models by the artists. All Yehochanan coins should be assigned to Hyrcanus II.[5]

On the other hand Kadman, Kindler, and Richard Hansen all agree that there are significant epigraphic differences in these coins. They maintain that this script is not simply an archaic script used for sake of sentimentality. The inscriptions' purpose was propaganda. Why print propaganda which no one can read? Although the square script was the official script used in diplomacy and scholarship, the "archaic" script was used and understood by the common people, the intended targets of the coins' propaganda. Evidence for the continued use of the "archaic" script is found at Qumran. The comparative accuracy of these inscriptions shows that the engravers understood the script being used.[6]

There is general agreement that the Hasmonean script can be distinguished from the script of the First and Second Revolts. The inscriptions of the Hasmonean coins have much more variety in letter form, are largely indifferent to the symmetry and arrangement of the inscription, have different forms of the same letter on a single coin, appear in weak relief, and have wedge shaped endings of the letters. The so-called Maccabean *he* is a peculiar letter. The coins of the First Revolt have great regularity of letter form, a tendency to symmetry in arrangement, appear in high relief, have nail-head letter endings, and are much more carefully executed.

Attempting to find clear distinctions between various Hasmonean coins is by no means so simple. Most numismatists agree that the *rosh* coins, the coins with the Greek letters, and the "A" coins belong to Hyrcanus II. Kindler believes that he can distinguish some of the plain Yehochanan coins as belonging to Hyrcanus I on an epigraphic basis. He believes that he can distinguish a more "block" form of script (Meshorer coin 26) and an "Aramaic" style script on coins which he attributes to Hyrcanus I.[7] On the coins which he attributes to Hyrcanus II he finds a style which he calls "Classic" (BMC 7) and another which he calls "Hanan" (BMC 32) because it shows up in these letters of the name Yehochanan. Kindler maintains that the Hyrcanus I coins have a shortened inscription and use the archaic rather than the Maccabean *he*.

Does a study of the inscriptions of the Yehochanan coins reveal any clear epigraphic differences? There are three types of differences in the Yehochanan inscriptions: different letter forms, different spelling and wording, and different arrangements of the lines in the inscription. Some epigraphers try to make finer distinctions concerning size and angles of the letters. Since many of the coins were available to me in transcription only, in somewhat of a conventionalized form, I based my study of the coins only on

distinctly different shapes of letters and differences in spelling and wording. I did not consider minor variations of letter size and angle.

The table which follows gives some of the major letter variants:

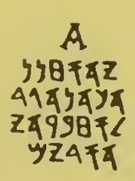
Heth	𐤇 𐤈	Yod	𐤉 𐤊 𐤋
He	𐤄 𐤅	Vav	𐤅 𐤆 𐤇
Kaph	𐤊 𐤋 𐤌	Nun	𐤍 𐤎 𐤏
Mem	𐤌 𐤏	Gimel	𐤋 𐤌

The variants in wording and spelling are basically full versus short spelling of 𐤋𐤓𐤋 and 𐤓𐤅𐤄𐤉 presence or absence of the definite article, and abbreviated endings to the inscription.

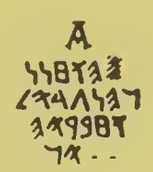
The characteristics of the "A" coins are as follows. The definite articles are almost always present except for one odd class which also has special letter forms (cf BMC 11-14). The short spelling of 𐤋𐤓𐤋 is followed except on the distinct class mentioned above. The full spelling of 𐤌𐤋𐤓𐤅𐤄𐤉 is always followed. The horizontal bar *heth* (𐤇) is always used. The so-called Maccabean 𐤄 *he* predominates except on the odd class. However, the archaic *he* (𐤅) appears on the "A" coins more often than on any other Hasmonean coins except those of Yonatan, where it appears on five of the nine coins which I examined. This seems to speak against Kindler's contention that the archaic *he* is a sign of the earliest coins. The "A" coins have a style of *kaph* (𐤊) which is the predominant form on all of the Hasmonean coins *except* the other Yehochanan coins, which have the style 𐤋 . Notice the strange situation — in some respects the Yehochanan "A" coins are more similar to the inscription coins of other Hasmonean rulers than they are to the plain Yehochanan coins.

There are two distinct classes of the "A" coins. The most common prefers the forms 𐤄𐤍𐤊𐤌𐤅𐤄𐤉. The other prefers the forms 𐤅𐤍𐤋𐤌𐤕𐤄. These classes are illustrated by coins 7 and 11. However, it does not seem possible to make definite connections between these two classes and any other varieties of the high priest coins. The problem is that each class of the "A" coins resembles one variety of high priest coins in one respect, but it resembles a different variety in other features.

I am inclined to agree with Meshorer that although there are distinct epigraphic differences among the Hasmonean coins, it is impossible to make sense of them. A comparison of several of the coins reveals some of the problems. A single letter form may represent different letter values on a single coin. See coin 11 where the shape 𐤋 represents both *kaf* and *mem*. A very similar, but not identical shape, represents both *vav* and *yod*. On coin 41 the shape represents 3 different letters! Coins 42 and 43 are mixed up. On a single coin two different forms of the same letter may appear. Note the two *yod* forms on coin 5 (𐤊𐤉) and coin 18 (𐤉𐤊) and 24 (𐤊𐤉). Two *daleths* appear on 18 (𐤋𐤓). Two *nuns* appear on coin 34 (𐤍𐤓). Meshorer's theory that variety in letter forms is due to engravers copying from ancient manuscripts does not seem very likely, because the variations exist on a single coin. It does not seem likely that engravers would copy from more than one manuscript while making a single die. Are these variations simply careless errors? Is it simply a matter of permitted flexibility in the script? Many interesting, but baffling questions remain to be answered.

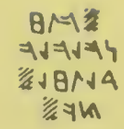


BMC 7



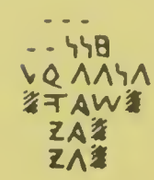
BMC 11

BMC 32

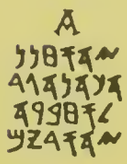


BMC 41

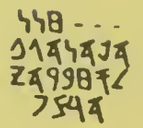
BMC 42



BMC 43

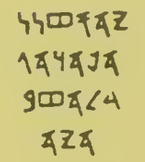


BMC 5



BMC 18

BMC 24



BMC 34

Various forms of inscriptions.

METAL ANALYSIS

It seems that our last good hope is analysis of the composition of the coins. Is there any change in the proportions of the elements in the bronze which suggests a pattern?

As early as 1927 Reifenberg performed tests which suggest that there is. He performed the tests which are summarized in the following table:

	Copper	Lead	Tin	Iron
Hyrcanus	83.11%	12.10%	4.08%	.47%
Jannaeus	81.10%	12.88%	6.99%	.09%
Antigonus Mattathias	68.25%	27.09%	4.15%	trace
Herod the Great	75.34%	12.79%	10.83%	.24%

Ben-David quotes this chart to support his contention that there is a pattern of steadily declining copper content through the Hasmonean period until the percentage was boosted back up by Herod and that this indicates that Hyrcanus I minted the first Jewish coins.[8] However, the evidence is completely inadequate to support such a contention. We are not told which types of Yehochanan coins were used in the test. Apparently no differentiation was made. Furthermore, the difference between the Hyrcanus and Jannaeus coins is too small to be certain that it is anything but a deviation in measurement. Most serious of all, it is very doubtful that such tests can be made with meaningful accuracy at all.

Bronze samples from a single bronze statue, cast in one pouring will differ as much as 10% in copper content when tested. This is demonstrated in the experiments done by A. E. Werner.[9] Three samples taken from one statue yielded the following results:

% Copper	% Lead	% Tin
71	20.9	8.1
60.6	30.0	9.4
60.4	32.8	6.8

Other tests have yielded similar results. Some of this may be due to peculiar problems related to the casting of large objects, but it seems probable that there would also be significant differences among the thousands of coins which could be cast from one batch of bronze. A difference of ½ to 1% exists between samples from a single coin.[10] It also is probable that the percentage of copper or other metals was not always due to deliberate choice, but was at least partly dependent on what ever scrap was available. Coins were very often re-smelted or re-struck. Evidence for this often may not be visible. We have no way of being certain that the coin blank was even made by the ruler whose name is now on it.

To make matters worse, it is very questionable if even the top laboratories in the world can obtain test results accurate enough to produce useful results for our purposes. This is demonstrated particularly by an experiment conducted by W. T. Chase. [11] Twenty-one leading laboratories in all areas of the world were sent three samples of bronze to be tested, an archeological sample believed to be high in tin, one low in tin, and a standard reference sample of 85% Cu., 5% each Sn., Pb., Zn. The archeological samples were ground and mixed to try to assure uniformity. The labs used ten different methods including emission spectrography, atomic absorption spectrography, wet chemistry, neutron activation analysis, and x-ray fluoresence. On the high tin sample one quarter of the labs were way off on the tin, and copper readings ranged from 75-88%. On the low-tin sample copper readings ranged from 80-97%. Half of the eight labs that tested the standard reference sample had large errors in their results. Caley also maintains that specific gravity, neutron activation, and x-ray fluorescence will not work on this type of coin. He claims wet chemistry will work,[12] but even this claim is questionable.

Part of the problem is inter-laboratory variation and differences due to methods of testing, but the problem is more serious than this. At the very least it shows that we cannot confidently compare results from one lab with those of another. There may be more validity in a lab's ranking of samples by relative percentage of certain metals, but even this is subject to question. Further work is necessary before we can feel confident in the results of such tests.

CONCLUSIONS

I will summarize my conclusions in two parts, first conclusions about methodology, second conclusions about the Yehochanan coins.

The necessary groundwork for a thorough interdisciplinary study of the Hasmonean coins has not yet been done. The coins are available. Over 1500 coins are available for study in just a dozen major museums. Many of them, of course, are in less than splendid condition. The problem is that most of these coins surfaced through antiquities markets and lack the necessary information concerning locus of find. Recent and current excavations should be able to fill in the gap of knowledge caused by lack of stratified material, if they are promptly and adequately published.

In the area of epigraphy we need a clarification of the status of the archaic script in Hasmonean times from literary or archeological sources before we can really evaluate the significance of epigraphic differences on the coins.

In the area of metallurgic testing further checks on the reliability of these tests and experiments with cast blanks of known composition are needed before numismatists can be confident in such tests.

At the present time numismatic study of the Hasmonean coins is heavily dependent on historic and epigraphic information in which the subjective interpretation of the writer looms large. Two sides can be argued on almost every question which has a bearing on the interpretation of the Yehochanan or "A" coins. None of the suggested interpretations of these coins can be solidly established on the basis of hard objective evidence.

Nevertheless, I will suggest what I consider most probable. I believe that the majority of numismatists are correct in opposition to Meshorer, and that the Hasmonean coinage began under Hyrcanus I. The circumstances of Hyrcanus' reign, the almost complete absence of Syrian small bronzes from Israel after 120 BC, and the presence of distinct varieties of Yehochanan coins tend to support this position.

I also agree with the present consensus that the "A" coins belong to the time of Hyrcanus II. This is supported by their epigraphic difference from other Yehochanan coins, which may be the coins of Hyrcanus I. The "A" coins are more similar to the coins of Yehod and Yehonatan which would interevene between the time of Hyrcanus I and Hyrcanus II. The historical circumstances of Hyrcanus II seem to explain the "A" coins best. They are associated with *rosh* coins in the Beth Zur hoard. These can best be explained in connection with the reign of Hyrcanus II. Antipater and Alexandra both have some degree of plausibility as candidates for the "A". I believe Alexandra is the more likely candidate than Antipater. There is a parallel in the coins of the Nabateans, in which the initial of the queen appears on the coins. There are differences between the *rosh* coins and the "A" coins. These coins would both be from the late phase of Hyrcanus' rule if the "A" referred to Antipater. If the "A" coins are from the beginning of Hyrcanus' rule at the time of Alexandra, before the emergence of Antipater, these differences are more easily explained. It also seems more probable that a queen who was *de facto* ruler and a member of the recognized priestly household could more successfully put her initial above the inscription of a high priest who was her son, than that a non-Jewish economic official would take the same liberties on a priestly coin.

The Alexandra theory seems the most likely, but it is not firmly established, and new evidence could change the picture.

Where does this leave us in solving our mystery? We can't really say that we have proved our case beyond a reasonable doubt. Like many ancient mysteries this one may never be solved, and the consequences won't be particularly devastating if it remains unsolved. This does not mean that the question has not been worth asking. In this case and others like it the value to us is probably not so much in finding a solution as in seeking a solution. Questions like this to which the answers do not come easily are often much more useful in leading us to question and shape our methodology than more important questions whose answers appear to be obvious. For me the value of the project has been in examining and recognizing the limitations of methods currently used in numismatic research and considering future directions in the same area. I hope that it served the same purpose for some of you.

FOOTNOTES

1. *PEQ*, 1973, p. 144.
2. Sukenik, *Jewish Quarterly Review*, 1947, pp. 281-84.
3. Meshorer, *Jewish Coins*, pp. 50-51.
4. Kindler, *IEJ* 2, p. 188. This is also the source of the chart.
5. Meshorer, *Jewish Coins*, pp. 48-49.
6. Kadman, *IEJ* 4, pp. 150 ff.
   Kindler, throughout.
   Hansen, *BASOR* 175, pp. 26 ff.
7. Compare BMC coins 34-39, Meshorer 26-27 and other coins.
8. Ben David, *PEQ* 124, 1972, p. 99.
9. A. E. Werner, *Royal Society* 169, pp. 178-185.
10. E. A. Coley, *Analysis of Ancient Metals*, p. 2.
11. Chase, *Advances in Chemistry* 138, pp. 148-186, esp. 176-177.
12. Caley, *op. cit.* p. 81.